**To:** CN=Dianne Soderlund/OU=R10/O=USEPA/C=US[]
**Cc:** []
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**From:** CN=Phil North/OU=R10/O=USEPA/C=US
**Sent:** Wed 3/8/2006 1:39:00 AM
**Subject:** Pebble

Hi Dianne,
I am not sure what you are looking for in terms of comments.

In spite of all the paper used to produce this document it does not contain a lot of information. My only comments are:
1. Temperature loggers should be placed at the water quality sampling sites to contain continuous data. The single data points presented in the appendix do not tell much of a story. Data loggers are inexpensive and are easily set, retrieved and data downloaded.
2. Similarly, logging pressure transducers, such as are being used in one of the hydrologic studies (could not remember which one, nor find the reference when I looked back), should be used to monitor the hydrologic function of representative examples of each wetland type, in each geomorphic setting. This would provide quantitative data on how the different wetland types function to retain and discharge water into the landscape. It would provide good information on flow attenuation and base flow contribution from different wetlands in different settings. The methods currently proposed for this purpose are theoretical. It is possible in this case to make imperical and quantitative descriptions of wetland function with a reasonable amount of additional effort and cost.
3. Streams along the road corridor should be surveyed for longitudinal channel form for 1/4 mile upstream and downstream of the proposed road crossing. This not simply a measure of slope. It will document the habitat features of the channel for comparison to a future state. Over time the road is likely to cause changes in hydraulics up and downstream of crossings. These changes are likely to be entrenchment of the stream and loss of habitat features. We need to document the "before" status of each site.

Phil

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